



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

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MEMORANDUM

SUBJECT: Recreational Use of Cement Creek and the Animas River

FROM: Susan Griffin, PhD, DABT
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THRU: Deb McKean PhD
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TO: Ernie Kuhlman
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San Juan Board of County Commissioners

Following the release of water from the Gold King Mine Site on August 5th 2015, EPA collected water quality and sediment samples from Cement Creek, the Animas, and San Juan Rivers on a regular basis. Those sampling results for surface water and sediment, as well as the locations they were collected from, can be found at <http://www2.epa.gov/goldkingmine/data-gold-king-mine-response#samplingdataresults>. These results were compared to screening levels for exposure during recreational use and historical background levels. All sampling results were below recreational screening levels or consistent with historical background levels. San Juan County, though, issued a public health advisory recommending against any contact with Cement Creek or the Animas River.

The recreational screening levels for surface water and sediment/soil for the Gold King Mine spill were based on older children and adults who would be hiking or camping near the river during the summer months (Memorial Day to Labor Day). The campers and hikers would be in the area all day long and would get all of their drinking water from the river (2 liters per day) and all of their sediment/soil exposure from the riverbanks. The exposure assumptions used in the screening levels are based on a child and adult who get the highest amount of exposure that is considered reasonable. These conservative exposure assumptions are then compared to long term toxicity values, which represent contaminant levels a person can be exposed to every day over their lifetime and not be harmed. These screening levels represent a high end estimate for recreational users. This means they are more conservative than screening levels for fisherman, rafters, swimmers, or other recreational users of the river primarily because their consumption of water and soil/sediment is higher. The surface water and sediment data collected from Cement Creek just upstream of Silverton

(location CC48) and downstream to the Animas and San Juan Rivers were below these conservative recreational screening values. This would suggest that recreational activities along the river at these points, including hiking, camping, swimming, rafting and fishing would be safe to engage in. Restrictions on recreational use of the rivers at these points would not be necessary.

Above the confluence of Cement and Minnehaha Creek, Cement Creek is influenced by drainage from a number of former mine sites. Historical water quality data has been collected since 2009 to the present. Surface water data collected upgradient of this confluence following the Gold King Mine spill is consistent with historical background data. Most of the analytes measured are also below the recreational screening levels described above. However, a couple of the analytes exceed the recreational screening levels. For example, the recreational screening level for manganese is 7800 ug/l. Historical background levels range from 1600 to 27,000 ug/l. Levels of manganese tend to be higher during low flow events and lower during high flow events. Manganese is associated with neurological effects such as intellectual impairment, depression, and manganism (which resembles Parkinson's disease). For this reason, it would be prudent to not use the surface water in Cement Creek upgradient of the confluence of Minnehaha Creek as a primary drinking water source. However, all other recreational uses of the river above this point, which don't use the surface water as a primary drinking water source, would be appropriate.